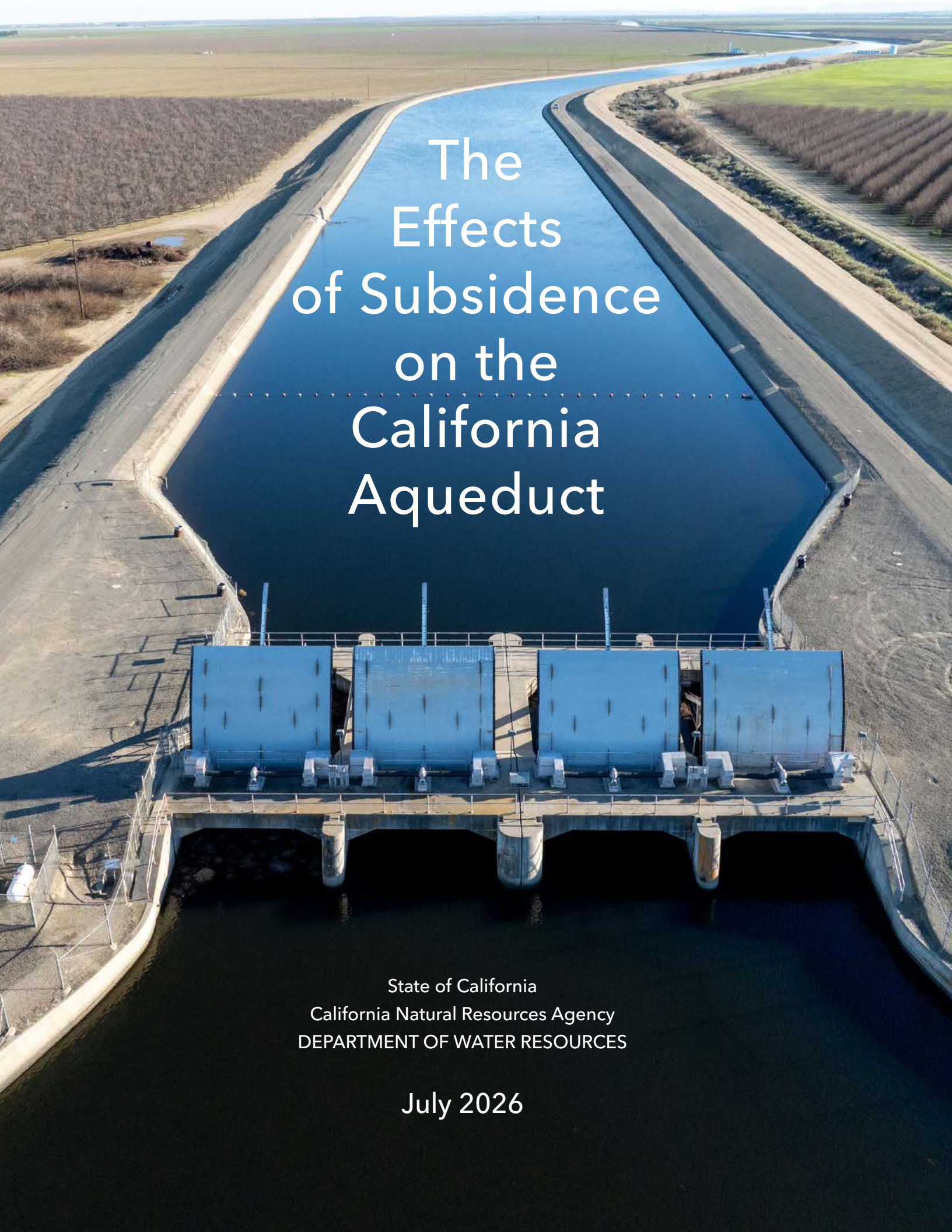


The Effects of Subsidence on the California Aqueduct

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES

July 2026

Cover: *A drone view of Check Structure 17 and the radial gates on the California Aqueduct in Five Points, California, in Fresno County. Photo taken Friday, January 9, 2026.*

The Effects of Subsidence on the California Aqueduct

July 2026

State of California

California Natural Resources Agency

DEPARTMENT OF WATER RESOURCES

California Aqueduct Subsidence Program

STATE OF CALIFORNIA

Gavin Newsom, *Governor*

CALIFORNIA NATURAL RESOURCES AGENCY

Wade Crowfoot, *Secretary*

DEPARTMENT OF WATER RESOURCES

Thomas Gibson, *Director*

John Yarbrough, *Deputy Director,* State Water Project

Ryan Endean, *Deputy Director, Communications*

PREPARERS & CONTRIBUTORS

This report was prepared under the supervision of:

David Sarkisian, *P.E., California Aqueduct Subsidence Program Executive Manager*

Jim Lopes, *P.E., California Aqueduct Subsidence Program Deputy Manager*

Andrew Schwarz, *P.E., State Water Project Long-term Planning Officer*

Chris Martin, *State Water Project Executive Policy Advisor*

Annie Wagner, *P.E., Technical Advisor to the State Water Project Deputy Director*

This report was prepared by:

Julia Schwartz, *Executive Division*

Contents

Figures and Tables

Abbreviations and Acronyms

AACE	Association for the Advancement of Cost Engineering
Aqueduct	California Aqueduct
CASP	California Aqueduct Subsidence Program
CVP	Central Valley Project
DWR	Department of Water Resources
GSA	Groundwater Sustainability Agency
Reclamation	U.S. Bureau of Reclamation
Delta	Sacramento-San Joaquin Delta
SGMA	Sustainable Groundwater Management Act
SLC	San Luis Canal
SWP	State Water Project

The Effects of Subsidence on the California Aqueduct

Introduction

The San Luis Canal and the California Aqueduct (California aqueduct system) operate together as critical water infrastructure for California's people, economy, and environment. The San Luis Canal is the portion of the California Aqueduct between O'Neill Forebay near Los Banos in Merced County and Kettleman City in Kings County. As part of the San Luis Joint-Use Facilities, it conveys water for both the State Water Project (SWP) and federally run Central Valley Project (CVP). It is owned by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) but classified as transferred works, meaning that it is operated and maintained by the California Department of Water Resources (DWR). The remainder of the California Aqueduct, running from Kettleman City to three separate branches in Santa Barbara, Los Angeles, and San Bernardino counties, is owned and operated by DWR for the SWP.

Subsidence is the sinking of the land surface due to compaction of soils and sediments beneath it and has occurred in the Central Valley since the 1920s. The primary cause of subsidence along the California aqueduct system is groundwater withdrawals for agricultural irrigation. It is also likely caused by fluid extraction associated with oil and gas activities in some specific areas. The relationship between groundwater pumping and subsidence intensifies during drought years, when surface water supplies decrease and agricultural users increase their reliance on groundwater.

Subsidence in California's Central Valley has damaged portions of the California aqueduct system in the San Joaquin Valley, and such damage is projected to continue into the future. Water flowing through the portions of the California aqueduct system affected by subsidence serves 1.5 million acres of farmland and approximately 24 million people.

If no corrective and preventive actions are taken to address subsidence-related effects on the California aqueduct system, the SWP could lose up to 87 percent of its delivery capability in the next 20 years, with the most severe impacts occurring during wet years (California Department of Water Resources 2025a). If the projected delivery reductions occur, municipalities and agricultural producers across much of the state would be affected. Water users in the Central Valley, the Central Coast, and Southern California and disadvantaged communities throughout these areas would face higher costs and extended timelines for securing replacement supplies, if replacement supplies were even feasible.

DWR is working actively to address subsidence through monitoring and coordination efforts with local agencies, as well as the design and implementation of major infrastructure projects to restore

Previous page: This section of aqueduct awaits new level of fresh concrete as subsidence repair work takes place on the California Aqueduct near lost Hills in Kern County. Photo taken March 9, 2021.

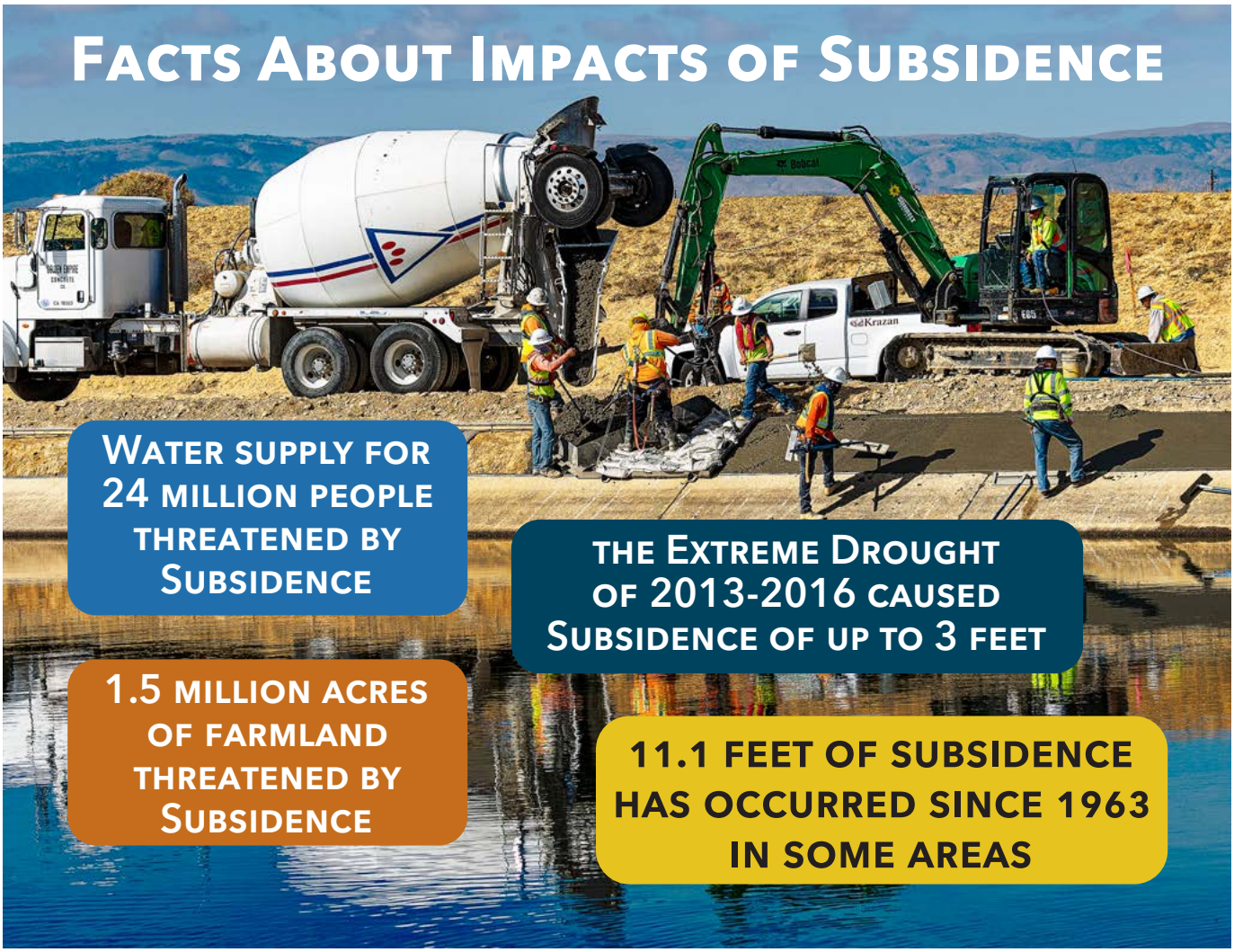
and maintain the function and flexibility of the California aqueduct system. To conclusively address past subsidence and subsidence projected to occur prior to full implementation of the Sustainable Groundwater Management Act (SGMA), capital cost estimates total approximately $3.87 billion in 2024 dollars. This figure includes $2.25 billion for facilities in the San Luis Canal and $1.62 billion for facilities in the California Aqueduct (California Department of Water Resources 2026). DWR is engaging with affected water users to optimize solutions to address subsided portions of the facilities.

Figure 1. State Water Project and Central Valley Project facilities, with portions affected by subsidence shown in dashed blue and orange (San Luis Canal) and solid orange (California Aqueduct).

Subsidence Threatens California's Keystone Water Delivery System

The California aqueduct system is the backbone of California's water infrastructure. This system of canals, pumping plants, reservoirs, and pipelines spans over 400 miles, moving water from north to south. The aqueducts extend from the Sacramento–San Joaquin Delta (Delta) in the north into Southern California, providing water to state and federal agricultural contractors in the San Joaquin Valley and municipal water districts from the Bay Area to San Diego County, making it essential for both urban and rural areas. Within both urban and rural areas, the SWP provides an important water supply for meeting California's human right to water as approximately three-quarters of California's disadvantaged communities are served by the SWP.

The SWP service area alone supports an economy of over $2.3 trillion, providing 8.7 million full-time jobs, spanning over 800,000 businesses, and employing 160,000 farmworkers. Farmland irrigated by the SWP produces over $19 billion in crops per year. Beyond water supply, the SWP generates hydroelectric power, protects 1.2 million Californians from flood risk, creates recreational opportunities at reservoirs throughout the system, and delivers environmental and ecosystem benefits through salinity control in the Delta and carefully managed flows for riparian areas and national wildlife refuges. Other water supply sources, such as stormwater capture, recycled water, or desalination, cannot replicate the scale and systemwide benefits of the SWP and the CVP. In addition, expanding these sources can increase the cost of water supplies and affect affordability (California Department of Water Resources 2023).



The central component of the SWP is the California Aqueduct. It begins at the Clifton Court Forebay in eastern Contra Costa County, where water from the Delta enters the Aqueduct through the Harvey O. Banks Pumping Plant. From there, the California Aqueduct extends over 400 miles, with water flowing by gravity and lifted over mountains by pumping plants. Three branches off of the California Aqueduct carry water to Santa Barbara County through the Coastal Branch; Los Angeles County through the West Branch; and San Bernardino County through the East Branch. Figure 1 shows the San Luis Canal and California Aqueduct in the context of the SWP. This shared reach of the canal is an integral part of both the SWP and the federal CVP.

Regional land subsidence, predominantly caused by groundwater overdraft, has substantially lowered portions of the California aqueduct system at several locations. This subsidence has created dips in ground elevation along the aqueduct, which constricts flow in several places in the Central Valley, thereby reducing flow capacity and compromising the system's ability to move water efficiently to where it is needed. Subsidence has also reduced the system's operational flexibility, making it more difficult to manage variable demands and water supply conditions. Loss of operational flexibility results in higher energy costs to convey water through the system. Water resources planning shows that subsidence would continue to worsen at affected locations and that substantial damage would occur as a result. DWR is working to update this forecast with more recent information; however, additional subsidence in these areas is still expected, supporting immediate corrective actions.

Subsidence in the San Joaquin Valley

Multiple drivers have contributed to subsidence in the San Joaquin Valley. The expansion of more water-intensive crops, reduced surface water deliveries to the region, increasing climate variability, and a lack of regulatory control over groundwater extraction have all played a role. Since the 1990s, there has been a substantial increase in land planted as orchards and vineyards within 5 miles on either side of the Aqueduct in Fresno County, Kings County and Kern County. Permanent crops like these cannot be fallowed in dry years. Growers therefore draw more heavily on groundwater during droughts. Over the same time period, increasing protections for endangered fish in the Delta and its tributaries have reduced the amount of water that can be diverted from the Delta, thus reducing surface water supplies. As with drought, growers respond by turning to groundwater. Finally, until 2014, the state lacked a comprehensive framework for groundwater regulation, which left groundwater basins vulnerable to overdraft. The 2014 SGMA requires that Groundwater Sustainability Agencies (GSAs) implement measures to eliminate groundwater overdraft of the sort that causes subsidence by 2043. However, there is significant uncertainty on when this requirement can be achieved and when subsidence will completely cease. Elevation survey results show that subsidence has lowered the elevation of the California aqueduct system at numerous locations and caused five distinct areas where the profile of the California aqueduct system is significantly depressed. These areas are referred to as subsidence "bowls." Figure 2 shows the depths of subsidence along the aqueduct, highlighting the location of each bowl (the numbers along the aqueduct correspond to the check structures that control water flow along the aqueduct).

The reaches of the California aqueduct system experiencing the greatest effects from subsidence are two sections: 1) the Panoche Bowl and Los Gatos Bowls, which extend from just south of the San Luis Reservoir in Merced County to near Kettleman City in Kings County, and 2) the Kern Bowl, extending from south of Kettleman City to due west of Bakersfield. Table 1 describes these effects over time.

Figure 2. Subsidence along the San Luis Canal (a joint-use facility owned by Reclamation and managed by DWR) and the California Aqueduct (owned and managed by DWR).

Table 1. Subsidence Impacts to the California aqueduct system

Time period	Subsidence Impacts
1920s – 1960s	Subsidence has been documented in the Central Valley for over a century, with rates of 20 to 30 feet recorded in parts of the Valley prior to the 1960s. The California Aqueduct was designed with this history in mind, and when deliveries from the California Aqueduct began, they initially helped to stabilize the subsidence.
1960s – 1980	Yearly rates of subsidence decreased to an average of less than 0.1 inches per year in normal to wet hydrologic years (Panoche and Los Gatos Bowls), with 1.1 inches per year of subsidence during dry to critically dry hydrologic years.
1980s – 1990s	Subsidence never fully stopped. As a response, the canal embankments and liners were raised in 1982, 1989, and 1996 in various locations throughout the system. Regulatory changes in the 1990s and 2000s significantly decreased surface water deliveries, but demand continued to grow, pushing water users to rely more heavily on groundwater.
2006	DWR operators first recorded a reduction in flow capacity in the Los Gatos Bowl near Kettleman City. Subsidence had lowered portions of canal so that water levels in the canal encroached into freeboard (the distance from the water surface to the top of the concrete canal liner needed for operational flexibility and infrastructure protection).
2013 - 2016	A prolonged drought led to average subsidence rates in the Panoche and Los Gatos Bowls of 4.0 inches per year, with nearly 7.5 inches per year in parts. Some areas of the canal sank at even greater rates and saw total subsidence of nearly 3 feet during the drought.
2017 - present	DWR has been carefully monitoring and mitigating subsidence and its effects on the SWP since 2017. The three areas of highest concern for subsidence impacts are the Panoche, Los Gatos, and Kern Bowls. DWR is sharing data and working with Reclamation and local Groundwater Sustainability Agencies, designing and implementing repairs for the most subsidence-impacted areas, and planning for a long-term and durable solution.

How Subsidence is Impacting Water Deliveries and Operations

Subsidence has caused some portions of the California aqueduct system to sink more than other sections. As a result, the canal's hydraulic conveyance capacity—the maximum amount of water that can be conveyed through the canal—has decreased. The magnitude of subsidence is directly related to reduction in hydraulic conveyance capacity, with additional subsidence directly resulting in more capacity losses. To compensate for this loss of hydraulic conveyance capacity, the required operating freeboard at the top of the concrete liner has been reduced from 3 feet to 1 foot. This loss of freeboard, which is the safety factor between the water surface elevation and the top of the canal liner, creates an increased risk of overtopping of canals, which could lead to spillage, flooding, and severe damage to the canal structure. Operational disruptions, such as pump shutdowns, can further increase this risk by causing upstream water levels to rise, reducing freeboard even more. Water overtopping incidents that lead to structural failure can take months to years to repair. Additional monitoring is required due to the increase of risk, including remote sensors and physical observations and inspections, but this continuous monitoring increases operational costs. There are no additional operational adaptations possible, and structural repairs are now required.

The operational impacts of subsidence translate into reductions in the SWP's ability to deliver water to its contractors. Even at 2023 levels of subsidence, with current operational adaptations in place, the

long-term average delivery capability of the SWP has been reduced by 3 percent compared to baseline estimates, which is equivalent to the annual water use of around 400,000 people and lowers average deliveries by around 77,000 acre-feet annually.

Without adequate funding for corrective actions, continuing subsidence and climate change could compromise the SWP's functionality to such an extent that it ceases to be a viable water delivery system. Comprehensive DWR modeling efforts show that water supply impacts due to subsidence exceed that of climate change. Currently, the SWP's estimated average annual delivery is about 2.2 million acre-feet per year. Under a moderate climate change and subsidence scenario, if preventive and corrective actions are not taken, delivery capability could be reduced by up to 18 percent by 2043. This translates to a decline of 400,000 acre-feet annually, equivalent to the water use of over two million people, bringing average deliveries down to 1.8 million acre-feet. However, under more severe conditions that combine extreme climate change with continued subsidence, the reduction reaches a staggering 87 percent. Average annual deliveries would fall by 1.9 million acre-feet, or the annual water use of almost 11 million people, to just 295,000 acre-feet. Despite some encouraging GSA activities, at this point in time based on current observations and trajectories, we cannot rule out the more severe decline scenario.

California's Mediterranean climate fluctuates between years of an abundance of rainfall to extreme droughts, often described as wet years and dry years, with great variation in monthly precipitation. Subsidence's impact on drought resilience is significant because California's water management strategy depends on capturing and storing water during high precipitation periods to sustain supplies through dry periods. Subsidence reduces water deliveries when the SWP has the greatest opportunity to fill storage facilities and recharge groundwater: high-flow conditions in wetter years. When less water can be moved into storage facilities, the state is more vulnerable to multi-year droughts and subsequent water shortages. This reduced resilience comes at a time when climate change is expected to increase precipitation variability, making both extreme wet periods and extreme dry periods more common and increasing the importance of conveyance capacity and storage options.

Significant reductions in delivery capability affect long-term average Table A deliveries—the maximum annual amount of SWP water that SWP water contractors are entitled to receive. The greatest delivery reductions occur during wet years when the system would normally operate near design capacity, 4.1 million acre-feet per year. These are the years when California needs maximum conveyance capability to move water into storage for subsequent dry periods. By 2043 under a moderately severe scenario, deliveries of Table A water during wet periods are estimated to be 295 TAF, only 7% of maximum allotted Table A quantities. By 2085, operations have become hydraulically infeasible under modeled subsidence scenarios, meaning that the aqueduct has subsided to a point at which near zero water flows (California Department of Water Resources 2025b).

Future scenarios project large reductions during wet years under both moderate and severe subsidence conditions, while dry years show somewhat less dramatic but still significant changes. Wet year deliveries are essential for managing resources planning in California, especially for SWP water users that have invested in surface and groundwater storage. These supplies are critical for drought resilience and cannot easily be replaced.

Modeling reveals differential impacts across the SWP service area. The greatest portion of reduced deliveries affects Southern California through the East Branch (Los Angeles, San Bernadino, and Riverside counties, with service to Orange and San Diego counties) and West Branch (Los Angeles and Ventura counties) of the California Aqueduct, because 92 percent of the SWP water going to these SWP contractors flows through the subsidence-affected California aqueduct system. Deliveries to the Coastal Branch/Santa Barbara County are eliminated entirely under severe subsidence scenarios if no action is taken.

The federal CVP also faces impacts from subsidence in the California aqueduct system. Reclamation water supplies are diverted from the San Luis Canal; in addition, CVP contractors rely on the hydraulic conveyance capacity of the California Aqueduct to convey water for delivery to wildlife refuges and Central Valley contractors. While subsidence impacts are more severe for SWP deliveries than CVP deliveries in percentage terms, both projects face increased operating costs and reduced capacity and flexibility that affect water users throughout the state.

Economic Implications

Agricultural producers make long-term investments in crops based on expected water availability. Reduced water deliveries eliminate their ability to store or recharge groundwater basins to meet future irrigation needs without depleting groundwater supplies. Permanent crops cannot easily be fallowed during water shortage years without severe economic consequences.

Energy and grid reliability also face impacts from subsidence. The SWP is the single largest user of electricity in the State of California; reduced hydraulic conveyance capacity due to subsidence constrains its ability to provide operational and load flexibility. When pumping cannot occur during periods of favorable energy and grid conditions, the SWP's role in supporting statewide reliability is diminished.

Disadvantaged communities face some of the highest immediate risks from subsidence impacts. Approximately three-quarters of California's disadvantaged communities are served by the CVP and SWP, and many of these are small water systems in the Central Valley and Southern California with limited financial capacity to absorb rate increases or develop alternative supplies. When deliveries to these communities are reduced, they have fewer options than large urban agencies with diverse portfolios. The communities most vulnerable to water supply disruptions are often those that contributed least to the groundwater overdraft that caused the problem.

The California Aqueduct Subsidence Program

In response to ongoing impacts caused by subsidence to the California aqueduct system, DWR has developed and implemented a series of actions to evaluate and address past, present, and future subsidence and ensure continued reliable water deliveries. These actions are designed to avoid additional remediations for subsidence in the future.

Through DWR's California Aqueduct Subsidence Program (CASP), the department is coordinating with Groundwater Sustainability Agencies that are implementing California's 2014 SGMA. This Act is a key regulatory mandate aimed to avoid undesirable results related to groundwater overdraft including subsidence. CASP assists with sharing survey data, technical analyses, and offering expertise to help local agencies understand how their groundwater management decisions affect SWP infrastructure. CASP also advocates for subsidence thresholds and management actions that protect the California Aqueduct in Groundwater Sustainability Plans, recognizing that local water supply needs must be balanced with infrastructure concerns. CASP also partners with Reclamation to coordinate monitoring and response efforts across both the state and federal projects. DWR has installed 9 monitoring installations, including extensometers that measure compaction at various depths within aquifer systems. These installations provide real-time data on subsidence rates and allow for more accurate forecasting, allowing the program to project subsidence impacts under various scenarios and prioritize response areas.

Beyond preventative actions, CASP is also working to implement the major infrastructure projects required to restore and maintain the hydraulic conveyance capacity and operational flexibility of the California aqueduct system in the short and long term. DWR recognizes that while long-term solutions must be developed and pursued, continued subsidence will result in significant water delivery impacts before these solutions can be fully implemented, as they have long time horizons and face severe financial barriers. A long-term plan will take several years to transition from development to construction stages, so "interim actions" have been designed to minimize reductions in deliveries prior to the full implementation of long-term solutions. Through CASP, DWR has and will undertake five interim action projects at a total cost of $72 million over the next four years to ensure continued SWP deliveries, focusing on the most critical bottlenecks in the system. These projects include raising the concrete liner of the canal through approximately 47 miles of the most deeply subsided areas in the Panoche, Los Gatos, and Kern Bowls. Construction on the first of these actions is scheduled to begin in fall 2026, and other projects are progressing through California Environmental Quality Act review and finalizing designs, with construction scheduled to begin by mid-2028. Reclamation and DWR have a cost-sharing agreement pertaining to corrective actions for the San Luis Canal. Under the Joint-Use Facilities Agreement, Reclamation pays 45% and DWR pays 55% of the costs for capital projects of this nature for the San Luis Canal.

Estimated Cost of Subsidence-Related Preventive and Corrective Actions for the San Luis Canal and California Aqueduct

DWR's planning goal is to restore and maintain the original hydraulic conveyance capacity and operational flexibility of the California aqueduct system. The scope of necessary work extends across hundreds of miles of canal and involves numerous structural components such as bridges and utility and pipeline crossings that must be raised, reconstructed, or replaced to accommodate the land surface changes that have already occurred and that are projected to continue. DWR is developing a long-term plan in coordination with Reclamation to implement corrective and preventive actions in several reaches of the San Luis Canal. A similar long-term plan is being developed by DWR for several reaches of the California Aqueduct.

DWR forecasting models examine a range of future subsidence estimates. The estimated capital costs shown in Table 2 below are based on future conditions that assume a continuation of subsidence and a warming climate. To address both past subsidence and subsidence projected to occur through 2085, capital cost estimates total approximately $3.87 billion in 2024 dollars. This figure includes $2.25 billion for facilities in the San Luis Canal (58 percent) and $1.62 billion for facilities in the California Aqueduct (42 percent). These estimates are subject to an uncertainty range of minus 30 percent to over 50 percent based on current information, but this range will narrow as engineering details are developed, and the project is refined. The capital cost includes construction costs, construction contingencies to account for potential issues, and project implementation costs (land purchasing, permitting, environmental mitigation, etc.). While these cost estimates include repair and replacement of facilities that are expected to continue to be damaged in the future, nearly three quarters of the San Luis Canal and two thirds of the California Aqueduct cost are to repair and replace facilities that have already sustained damage.

Table 2. CASP capital cost estimate to address past subsidence and projected 2085 subsidence in the California aqueduct system

Select Costing Details	San Luis Canal[1, 2]	California Aqueduct[1, 2]	Total[1, 2]
Subtotal of Construction Items	$1,155 M	$830 M	$1,985 M
Subtotal of Construction Items with 5.5% Escalation to Mid-Point of Construction	$1,219 M	$875 M	$2,094 M
Design Contingency (20%)	$244 M	$175 M	$419 M
Contract Cost	$1,463 M	$1,050 M	$2,513 M
Construction Contingency (10%)	$146 M	$105 M	$251 M
Field Cost	$1,609 M	$1,156 M	$2,764 M
Land/Right-of-Way Easement Negotiation/Purchase (5%)	$80 M	$58 M	$138 M
Environmental Mitigation (10%)	$161 M	$116 M	$276 M
Engineering, Permitting, Legal, Project Management, and Construction Management (25%)	$402 M	$289 M	$691 M
Total Capital Cost	$2,252 M	$1,618 M	$3,870 M
AACE Class 4/5 Capital Cost Low Estimate (-30%)	$1,577 M	$1,132 M	$2,709 M
AACE Class 4/5 Capital Cost (+50%)	$3,379 M	$2,427 M	$5,805 M

[1]. Values may not add to totals due to rounding.

[2]. Costs presented in millions of 2024 dollars.

Key: AACE = Association for the Advancement of Cost Engineering

The scale of investment reflects the many design components impacted by subsidence; beyond modifications to the canal itself, bridges, drainage structures, pipelines, and utility infrastructure will need to be replaced or adjusted to operate correctly. The investment case for early action is compelling from a cost-effectiveness perspective. Deferring repairs to later decades would mean accepting additional delivery reductions in the interim, with mounting economic costs to water contractors, ratepayers, and the broader California economy. The longer subsidence continues, the more extensive the required repairs become, and the higher the ultimate costs. Additionally, infrastructure components stressed by inadequate freeboard and altered hydraulic conditions face accelerated deterioration, potentially leading to emergency repairs that are more expensive than planned maintenance. Early, sustained funding allows for strategic sequencing of projects, contracting and construction, and the ability to address the most critical bottlenecks before they create cascading operational constraints throughout the system.

Funding Opportunities and Investment Mechanisms

Subsidence has been occurring in the Central Valley since the 1920s. The SWP and CVP were envisioned, in part, to reduce reliance on groundwater. However, subsidence has continued, particularly during drought years, and some level of subsidence risk is likely to continue as groundwater basins transition toward SGMA sustainability requirements by 2040. Without timely repairs, subsidence impacts to the California aqueduct system will continue to reduce delivery capability for approximately 1.5 million acres of farmland and 24 million Californians. Existing funding is insufficient to meet the magnitude of

repairs needed for this critical statewide infrastructure. Many aqueduct beneficiaries are located far from the subsidence-affected areas and did not contribute to the local groundwater conditions causing the damage. Public investment is needed to protect this statewide water supply system, supported by a diversified mix of local, state, and federal resources as subsidence is subdued with SGMA implementation.

Through the California General Fund, the state has already invested $200 million to monitor, model, and design repairs to California water conveyance infrastructure damaged by subsidence, of which $126 million went to non-SWP agencies. Continued General Fund appropriations represent an acknowledgment that the SWP serves a crucial statewide interest that extends beyond affordable water supply, including major contributions to the state's economy through deliveries to key agricultural production regions, continued existence of thousands of businesses and jobs in two-thirds of California, flood control, clean energy, recreational opportunities, and environmental protection. From industry to agriculture, California's economy relies on the SWP.

California Proposition 4, also known as the Climate Bond, was passed by voters in 2024 and could provide resources for repairs to existing infrastructure for damage caused by subsidence. This mechanism recognizes subsidence as a distinct challenge that will require resources beyond routine water infrastructure programs.

Federal partnership represents another major opportunity, particularly through collaboration with Reclamation. The San Luis Canal is owned by Reclamation and serves both SWP and CVP purposes, creating a clear federal interest in maintaining its delivery capability. DWR is working with Reclamation to conduct the studies necessary to request approximately $900 million from Congress to cover the federal government's share of the cost repairs. However, federal funding is not guaranteed, and extraordinary maintenance funding requests to Congress could take years. In March 2026, the U.S. Department of the Interior announced that $50 million would be directed to subsidence-related impacts on the San Luis Canal, funded by the One Big Beautiful Bill Act.

Without a dedicated funding source, the SWP and CVP water supply and delivery futures will remain uncertain.

References

California Department of Water Resources (DWR). 2026. *California Aqueduct Subsidence Program Long-term Rehabilitation Capital Cost Estimate Report.* Sacramento (CA). January 2026. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Engineering-And-Construction/Files/Subsidence/CASP_LongTermRehabilitationCapitalCostEstimate_FINAL.pdf

California Department of Water Resources (DWR). 2025a. *The State Water Project Delivery Capability Report 2023 Addendum: Impacts of Subsidence.* Sacramento (CA). May 2025. https://data.ca.gov/dataset/final-state-water-project-delivery-capability-report-2023/resource/28089fa3-bf6a-4ab4-b19c-9889f85e9f4c

California Department of Water Resources (DWR). 2025b. State Water Project Adaptation Strategy. Sacramento (CA). August 2025. https://cawaterlibrary.net/document/state-water-project-adaptation-strategy/

California Department of Water Resources (DWR). 2023. *The Economy of the State Water Project: Clean, Reliable, and Affordable Water for California*. Sacramento (CA). December 2023. https://water.ca.gov/-/media/DWR-Website/Web-Pages/News/Files/FINAL-12-14-2023---The-Economy-of-the-State-Water-Project.pdf

***Back cover:** DWR installing a groundwater monitoring well at California Aqueduct Check Structure 24 to monitor groundwater levels, document the depth of groundwater extraction, and aid in understanding land subsidence impacts on infrastructure. Photo taken October 13, 2022.*

State of California
California Natural Resources Agency
DEPARTMENT OF WATER RESOURCES